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Lean Leadership – 15 Rules for a sustainable Lean Implementation

U. Dombrowski, T. Mielke*

*Technische Universität Braunschweig – Institute for Advanced Industrial Management, Langer Kamp 19, 38106 Braunschweig, Germany** Corresponding author. Tel.: +49 531 391 2714 ; fax: +49 531 391 8237. E-mail address: tim.mielke@tu-bs.de

Abstract

Lean leadership could be the missing link between toolbox lean and a sustainable continuously improving organization. More and more enterprises realize that they have so far basically focused on the visible parts of lean production systems. Although process optimization with the various methods like kanban, 5S, SMED, FIFO and many more is very effective to achieve short term improvements, after a few years, the lean programs of many enterprises do not meet the expectations anymore. The common approach can be explained by using the 4P Model. It consists of 4 levels that are all necessary for a sustainable lean implementation. The levels are: philosophy (long-term thinking), process (eliminate waste), people and partner (respect, challenge and grow them) and problem solving (CIP and learning). All these terms are well-known. However, most enterprises merely focus on process. Eliminating waste in all processes has been preponderantly adopted, whereas the other 3Ps, the “invisible” parts of lean, are less easy to adopt but equally important for the sustainable implementation. Lean leadership addresses all 4Ps and provides a methodical system for the sustainable implementation and continuous improvement of lean production systems. It describes the cooperation of employees and leaders in their mutual striving for perfection. By now, many authors have identified the need for a lean leadership but only few holistic concepts exist. Especially lower and middle management lacks some clear advices and rules for lean leadership implementation. Therefore, some indicators for successful lean leadership were deduced from literature, study results, and practical experiences of lean implementation. The indicators were found in advices given on successful lean implementations, but particularly in mistakes and shortcomings. After reformulating the indicators into requirements for leaders, they were assigned to the five principles improvement culture, self-development, qualification, gemba, and hoshin kanri. These requirements shall help executives in realizing lean leadership.

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1. Introduction

Many lean implementations fall short of expectations in the long term. [1-3] Enterprises achieve significant results in the first years of lean by implementing kanban 5S, SMED, FIFO and many more but improvements stagnate sooner or later.

The reason for the stagnation could be the sole focus on waste reduction and its methods. Indeed, waste reduction is an important element of lean but it does not create a true lean thinking organization and consequently, no continuous improvement process (CIP). The CIP is far more than an

employee suggestion system or a monthly CIP workshop. The CIP arises from an improvement culture. The missing link between the mere waste reduction and the continuously improving lean organization could be lean leadership. [1, 3, 4] Many authors emphasize the importance of a different leadership in lean production systems (LPS) [1-8], which is adapted to the specific needs of a lean organization.

The implementation of a lean production system changes the way improvements are made. In order to eliminate waste continuously, employees have to question their processes and identify improvement possibilities. [9] A separation of blue

and white collar work is no longer possible. The continuous improvement process changes the role of employees and makes them a valuable resource for improvement. The significant difference between common innovation and CIP is explained in the following.

2. Understanding of true Continuous Improvement

Continuous improvement is a key element of LPS and is one of the major differences compared to typical mass production. A survey carried out by the Institute for Advanced Industrial Management showed that 90% of the participants affirm to have implemented a CIP. Furthermore, they rate the CIP as very important. [1] Yet, it is doubtful whether this is a true continuous improvement process. More likely, the companies surveyed have implemented some methods of CIP like CIP-workshops or employee suggestion systems. Observations by lean experts in enterprises indicate an actual spread of continuous improvement of less than 10%. [2] Methods like CIP-workshops lead to good results in many enterprises but will not initiate a true continuous improvement process. The reason might be the singular character of an event that does not underline the long-term thinking and continuity of CIP. [10, 11]

True CIP has to take place on a daily basis and in all departments. It has to result from an improvement culture. Employee suggestion systems are a typical approach to structure CIP-activities and to enhance them through extrinsic motivation measures like incentives. Often, bureaucratic obstacles frustrate employees, diminish intrinsic motivation and impede an improvement culture in which all employees question their processes every day. Daily improvement should become a natural behavior of all employees and should be driven by wish for personal development and the sense of achievement and not by monetary advantages. [2] A basic prerequisite is the involvement of leadership. Leaders have to support the improvement culture by living it and setting an example. The implementation of a true CIP is in the top management's responsibility. [12]

The continuous improvement is a key element of lean leadership for two reasons: it undermines the necessity of improving all processes and because it imposes new requirements for leaders and employees. In mass production, improvement is often made through large, radical innovation steps, that require much effort and take place seldom. CIP follows a completely different approach. IMAI describes twelve attributes that characterize the difference between large innovation steps and CIP. (Figure 1). The attributes show the manifold changes that are necessary for CIP.

It is shown, that CIP causes major changes in the daily work of employees. Especially operational employees have to participate much stronger in improvement activities (attribute 5,6,9,10) and are thereby no longer object but rather the acting subject of improvement. [13-15].

Leaders have to give their employees more space for experimenting with their processes in order to develop their own ideas and they furthermore have to qualify them for

Innovation	Characteristic	CIP
Short-term, dramatic	1. Effect	Long-term, undramatic
Big steps	2. Pace	Small steps
Intermittent	3. Timeframe	Continuous incremental
Abrupt and volatile	4. Change	Gradual and constant
Select few champions	5. Involvement	Everybody
Individualism	6. Approach	Collectivism
Scrap & rebuild	7. Mode	Maintain & improve
New inventions	8. Spark	State of the art
Large investment but little effort to maintain	9. Requirements	Little investment but big effort to maintain
Technology	10. Effort orientation	People
Results, profit	11. Evaluation	Process, improvements
Better for fast growth economy	12. Advantage	Better for slow growth economy

Figure 1: Attributes of continuous improvement [12]

autonomous improvement. The attributes 1,2 and 3 require long term thinking in leadership. In summary, it can be said that lean production systems change the daily tasks and the way employees and leaders interact in their everyday cooperation. In literature, several references suggest a different type of leadership in LPS and describe success stories, failures and obstacles. In the following basic lean leadership approaches are presented and 15 rules for lean leaders are introduced.

3. Lean Leadership approaches

“Lean leadership is a methodical system for the sustainable implementation and continuous improvement of LPS. It describes the cooperation of employees and leaders in their mutual striving for perfection. This includes the customer focus of all processes as well as the long-term development of employees and leaders.” [1]

The basic elements of lean leadership can be described with five fundamental principles.

- Improvement culture
- Self-development
- Qualification
- Gemba
- Hoshin Kanri

These principles have been derived from various references and can be seen as an independent conclusion of recent approaches. [1] Figure 2 shows the principles and gives some examples.

Beside these principles, particularly the diamond model for leadership development [2] and the Toyota kata present holistic approaches for lean leadership. Both approaches are briefly described in the following.

The diamond model is a four step development cycle that is focused on some true north values. At the first step, leaders have to confess themselves to their self development and the

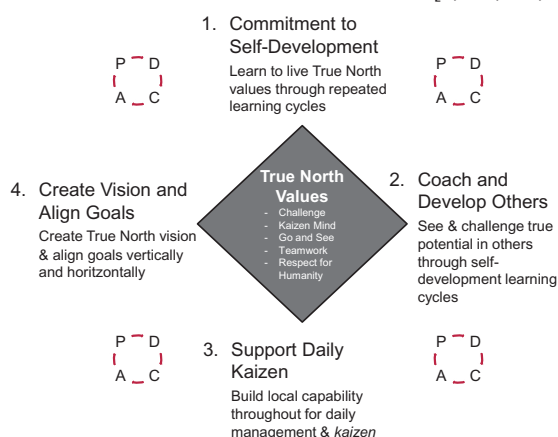


Figure 2: Fundamental principles of lean leadership [1]

true north values. The second step includes the development of their employees. In the third step of the approach, the actual CIP takes place. The fourth step comprises the development of a vision and the setting of targets. [2] The whole cycle is shown in figure 3.

The Toyota kata describes two standardized approaches. The improvement kata for process development and the coaching kata for employee development. The improvement kata is an open ended routine that has no predefined outcome. Employees use it to experimentally improve their processes toward a desired target condition. The approach uses short improvement cycles and single factor experiments, that help to identify cause and effect relationships. The coaching kata is used to implement the improvement kata in the whole organization. Executives lead their employees by asking a set of questions that help to structure the problem-solving. [11] Compared to other lean approaches, lean leadership does not predefine the solution. Leaders do not determine whether a process should be designed according to kanban, 5S or U-cell. It is rather important to develop the employee and its process toward the desired target conditions.

Self-development and qualification should be supported with standardized problem-solving routines, that aim on systematic and ritualized use of Plan-Do-Check-Act. [2, 11, 16, 17]



These routines pre-eminently subserve the actual process improvement but are also an important enabler to embed an improvement culture in the enterprise and to develop leaders as well as employees. Therefore, problem-solving should always follow a standardized, scientific approach. [16]

4. New requirements: 15 Rules for Sustainable Lean Implementation

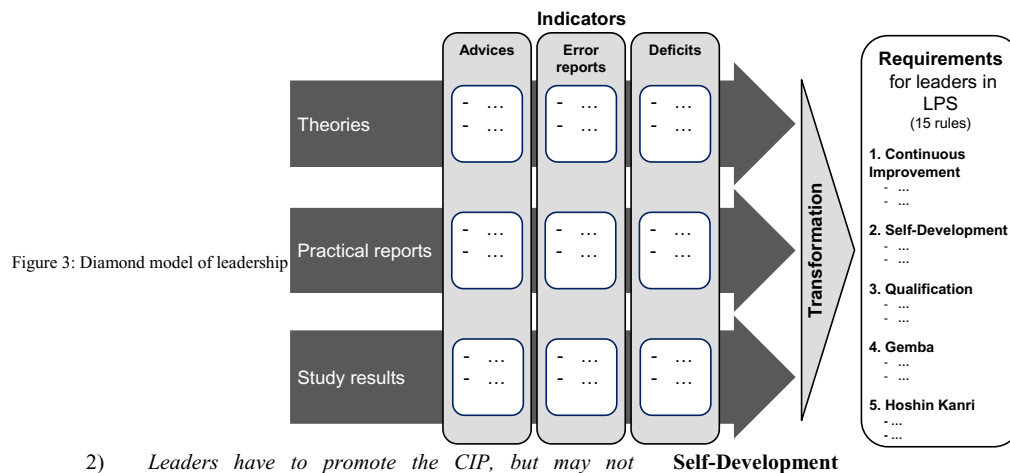
The common principles of lean leadership become more and more spread and applied. What executives are frequently missing is, however, the link to their specific work. [1] To achieve a more precise description of the principles, indicators for successful lean leadership were deduced from several theories and practical reports as well as from study results. They were derived from advices, error reports, deficits and obstacles and then translated into new requirements. This pathogenetic approach allows to frame new rules for lean leaders. (Figure 4) The normative argument for the derivation was whether the reference gave practical advice for the application of a lean leadership principle.

These rules emerging from the particular principles are presented below. Usually, there is interaction with several principles, so that they were allocated according to their main effect. The numeration of requirements does not indicate the rank of importance. The following principles are designed to give practical assistance in everyday lean leadership because this has always been criticized about earlier publications. They should support the applicability of lean leadership and are not thought to substantiate the theoretic fundamentals of lean leadership. Thus, they can not present a comprehensive summary of rules. The major part of the literature was chosen based on the references that were used to derive the principles of lean leadership. This seemed conclusive since the goal was to find practical guidelines for each principle. Furthermore, the literature used contains specific references for each principle. For example, literature concerning error management was used to find some indications for the applicability of the principle of improvement culture.

Improvement Culture

- 1) *Continuous improvement demands leader's continuity.* [2, 10]

For achieving a lean leadership, executives must develop themselves over years. They have to get to know the company very well and ideally work their way up through all hierarchy levels. This is the only way deep knowledge about all company processes and the prevailing problem-solving routine can evolve. As one of the key tasks of a leader is the development of his employees, it is necessary that he has enough time in one department to find out about their individual learning needs. This requirement is in contradistinction to a hire and fire mindset as well as to frequent task or job changes.



2) *Leaders have to promote the CIP, but may not intervene directly in the problem-solving.* [2, 7, 11, 16]

It is often said that problem-solving is the key task of leaders in LPS. But it is crucial to keep in mind that this is not about finding the solution of problems by themselves, but about the promotion of the problem-solving process. Superiors in companies often think they know the best solution and immediately name it. This behavior ordinarily has a bad impact on the employees' problem-solving creativity, because no one dares differing from the proposed solution. Nevertheless, executives play a significant role in the problem-solving process: as coaches. They accompany and direct the problem-solving process, and not the solution itself.

Self-Development

4) *Self-awareness is the first step toward (self-) improvement.* [2, 17]

First of all, managers have to identify their individual potential for further training. This implies their ability for self-assessment. Self-reflection (also called Hansei) is an important part of self-awareness and self-development. Only if the executives discern their current situation and potential errors, they are able to direct their own further development and to understand their coaches' goals. There is no need for executives to feel confirmed, just because they so far succeeded with their present abilities and behavior.

Figure 4: Requirement derivation for lean leadership

Hereby, they lead through questions. This openness for results is an important requirement for a successful CIP.

3) *Errors will always occur - their consequences should be avoided.* [2, 18]

Although an often quoted vision, the error, learning or improvement culture is seldom achieved. Here, the managers enact a vital role. They have to set the example in respect of dealing with errors. On a daily basis, it is quite hard for executives to accept errors and praise the employees for their detection. Still, executives must try to keep in mind that errors will always occur, since they are inherent to a sociotechnical system. It is important, though, to quickly identify the root causes and to learn from them. Error consequences (defects), however, must by all means be avoided in a zero-defects production. They refer to the product or the service and can be noticed by the customer. Thus, a zero-defects strategy should aim on the actual defect product or service and not on the error itself. According to [19], a successful improvement culture can result in an increase in productivity of 20 percent.

Willingness for self-reflection is a precondition for an executive function in an LPS.

5) *After a promotion, the status quo has to be internalized.* [2, 17]

Executives should ideally work their way up from operational process level. They should not be promoted before they master all processes on that special level or respectively in their team. Then, the executive can be promoted to be a coach on the next level. This also shows why long-term developed executives can only to a limited extend be replaced by external managers or coaches. Deep process knowledge is crucial for lean leadership, because it is the basis for coaching others.

6) *Lean leadership requires different abilities and behaviors* [10, 11, 17]

Leaders have to learn to hold the customer's view. This is helpful in defining goals and in structuring them in reasonable intermediate goals for the single processes and employees. Moreover, the leaders have to master the company's problem-solving routine, so that they can pass their knowledge to their employees during coaching. Leadership in LPS is less authoritative than in conventional production systems.

Executives have to learn rather cooperative leadership styles and let their employees participate in problem solving. It is also very important that executives learn how to delegate tasks.

Qualification

- 7) *Leaders have to make themselves in their actual job superfluous.* [17]

This way leaders show that they succeeded in stabilizing their processes and developing their employees' problem-solving abilities. In doing so, the executive in question can commend himself for other tasks whereas ideally having already developed a successor.

- 8) *All employees need to be developed individually.* [2, 3, 6, 7, 20]

The long-term development of employees is a central distinguishing characteristic of LPS compared to other production approaches. It is a precondition for including employees in the CIP. In many cases, while implementing an LPS an idea management or employee suggestion system is established. From then on, employees are expected to conduct the CIP. Autonomous problem solving is among the least accomplished goals and requires long-term employee development. It is crucial that every employee internalizes the company's problem-solving procedure. This cannot be achieved through classical teacher-centered education, but only through daily development by coaching. Not solely top performers are developed, but, as far as possible, every employee at his or her individual level.

- 9) *Learning has to take place in short cycles* [2, 11, 16, 21]

Short problem-solving cycles result in quick feedback and thus in quick successes in learning. Both promotes employees' motivation and contributes to their autonomous and continuous improvement. Problem-solving as well as learning should be performed in a standardized way based on the PDCA. Numerous regular repetitions and a scientific experimental approach are essential.

Gemba

- 10) *Decisions are based on facts.* [2, 3, 7, 21, 22]

Executives should make decisions based on self-gained facts. This can only happen in the gemba, the place where the actual work is done. That is why decision-making should be removed from conference rooms back to the shop floor. Only if leaders put themselves in the employee's shoes at the very place where his work is done, they can really understand his problems and their root causes. The executives' office should be located closely to the gemba to support this.

- 11) *The gemba is the place of action and learning.* [2, 7]

The daily work routine of an employee is full of possibilities for learning. For this reason, artificial problems for teaching

and learning are superfluous. Managers can develop their employees directly at the gemba and do not need any exemplary tasks or training material. In some cases the production flow might be interrupted by learning activities. In such cases learning should take place close to the process and with realistic scenarios (e.g. learning factories). The coaching of employees itself provides the opportunity to individually develop their problem-solving skills. Hence, executives do not only spend time at the gemba to gain their own view on things happening there, but most of all to develop their employees. A common misinterpretation occurs when executives solve the employees' problems themselves instead of supporting them on site in their problem-solving without already having the supposed perfect solution in mind. Solely if an employee makes it through the whole problem-solving routine on his own, he can benefit from the total learning outcome.

- 12) *Leading at the gemba only works with a small leader-to-employee ratio.* [2, 18]

While implementing an LPS, many companies reduce their levels of hierarchy in order to allegedly achieve a lean structure. Leading at the gemba, however, requires a small leader-to-employee ratio, because the leaders shall be able to pay attention to each single employee. At operational level, a ratio of 1:5 is recommended, at higher levels a ratio up to 1:10. In general, a leader-to-employee ratio from 5 to 9 should be established.

Hoshin Kanri

- 13) *Long-term goals are never abandoned in favor of short-term goals.* [10, 11]

The CIP is no event, workshop or project. Such short-term measures might support the long-term development, but never may impede it. Short-term goals, which are often more urgent, must not impair the usually more important long-term goals

- 14) *The target system is also used to assess the employee development.* [2, 5, 7]

"Before we built cars, we built people." This proverb of Toyota very well illustrates the high importance of employee development. Thus, employee development has to be highly rated in the target system. The process can only be as good as the employee. For this reason, both have to be developed equally.

- 15) *In the striving for perfection the formulation of precise intermediate goals is indispensable.* [2, 3, 7, 11]

Leaders must live the vision or the true north of the company. Normally, executives have target agreements, which they have to reach. It is crucial, however, that these targets are adapted to the special department and its processes. It is the leader's task to transfer the targets in personal (intermediate) goals for every single employee. The mere cascading down of overall targets (for example 10% increase in productivity in all departments on all levels) is unrewarding. In fact, the targets have to be translated into precise requirements for the

process. These intermediate goals have to be set in a way that promotes adequate development of both processes and employees.

5. Conclusion

Lean production systems have become state of the art in manufacturing enterprises. However, in many enterprises the gradient of improvement declines over time. The few enterprises with a successful and sustainable lean implementation seem to have a different type of CIP. This true CIP is linked to a different leadership approach. Many references confirm, that a different way of leadership is necessary but few give practical advice.

In this paper, the attributes of a true CIP were described and some basic lean leadership approaches were explained. Based on these approaches, 15 practice-oriented requirements were identified, that could be derived from study results and various references regarding advices, error reports and deficits in leadership during lean implementations. These new requirements were framed as rules for lean leaders to support their daily efforts toward a true continuous improvement. The actual effectiveness of the rules is by now based on theoretical approaches and practical reports and should be systematically evaluated in future research.

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